MISSION

The mission of our CHF QUERI Center is to improve survival and quality of life for all VA patients with heart failure and those at risk for heart failure through collaboration with other VA organizations to implement best practices. We believe the best way to achieve this mission is through **increased use of care known to prolong survival** and other interventions that **reduce hospitalization rates**. An additional objective is to **contribute to implementation science** while we work toward the above goals. We have designed our implementation projects accordingly using formative evaluations and randomized trials of different implementation strategies.

Once the use rates of life-prolonging treatments are at a high level and readmission rates are low, we plan to focus on identification and treatment of patients with unsuspected reduced left ventricular ejection fraction (LVEF) in order to prevent subsequent heart failure. The medical treatment of heart failure and preserved systolic function (diastolic dysfunction) is also not a current focus of our QUERI due to the lack of relevant clinical practice guidelines. However, this may change if specific treatment guidelines for patients with diastolic heart failure (Step two) become available.

GOALS

<u>Rank Order of Clinical Issues</u>

1) Readmission rates: Disease management and home based monitoring and education not widely used.
2) Life-prolonging treatments
    - 2.a) **Beta-blockers**: large population will benefit, not at target usage
    - 2.b) Aldosterone antagonists: smaller population for benefit but not at target usage, not yet NQF performance measure.
    - 2.c) Hydralazine/nitrate combination for African-Americans: smaller population for benefit but not at target usage, not yet NQF performance measure.
    - 2.d) ACE inhibitors: already at a high level based on EPRP data and high compared to non-VA benchmarks.
3) Prevention and identification of those with unrecognized heart failure
4) Other therapies: Unclear impact on survival or quality of life
    - 4.a) Measurement of Left Ventricular Ejection Fraction: VA already doing well based on EPRP data.
    - 4.b) Patient education at discharge: VA already doing well based on EPRP data.
    - 4.c) ICDs, cardiac resynchronization, unclear if cost-effective, not available at each VA center.
    - 4.d) Digoxin: no mortality benefit
    - 4.e) Diuretics: not studied in large randomized trials
5) End of life care: No specific guideline recommendations

Based on the above ranking we have identified three clinical goals that span all time horizons: increasing the use of life prolonging treatment, preventing and identifying unrecognized heart failure and reducing hospitalizations.

Goal 1. Reduce Admission Rates

We have chosen reduction in readmission as our primary goal because it is a major economic burden for the VA due to the high cost of care ($1000 per day, for a typical 5-6 day stay). (4) Success with this goal will be highly correlated with success with our second goal given that the life-prolonging medical treatments (ACE inhibitors, beta-blockers, aldosterone antagonists) also reduce admission rates. (5) However, there are specific interventions that can be employed to reach this goal, such as optimal use of **disease management including home based monitoring and patient education**. (25-32) Many of the life-prolonging treatments are promoted as part of the **Save 5 Million Lives Campaign** of the **Institute for Healthcare Improvement (IHI)** that the VA has joined. We will focus on **early follow-up after discharge** with the aim of reducing heart failure hospitalizations.

Goal 2: Increase the Use of Life-Prolonging Treatment

In the past, the first goal of our QUERI Center was be to increase compliance with treatments known to prolong survival for patients with heart failure. Results from randomized trials indicate that survival, hospitalizations and quality of life improve with appropriate use of medications (first priority: beta-blockers). (5) We chose **beta-blockers** as the first target because of their high impact on survival, the large number of eligible patients and the sub-optimal use in the VA system. Given the high use rates now achieved by the VA we consider further increases a secondary goal.

A related goal of our center has been to improve care for **patients who historically have been undertreated**. Specifically, we will examine disparities in heart failure care based on race, gender, age, rural vs. urban location, mental illness, alcohol dependence and renal insufficiency. The impact of mental illness on heart failure treatment is poorly defined and this effort will be led by Dr. Susan Frayne (co-investigator). Poor quality of care for patients with renal insufficiency and heart disease has been documented by Dr. Michael Shlipak (co-investigator) (23, 24) and he will work with CHF-QUERI to develop interventions aimed at improving their care. We will collaborate with **SUD QUERI** in better understanding treatment and quality of care for heart failure patients with **alcohol dependence**.

Although there are many potential candidates for ICDs and biventricular pacemakers within the VA system, we will not focus on increasing their use at this time given the uncertain cost-effectiveness of the devices. Instead we have focused on understanding the cost and benefit of these devices on different groups of VA patients based on certain clinical characteristics. This HSR&D funded study will take advantage of the VA ICD Surveillance Center which is affiliated with CHF-QUERI and located at VA San Francisco Medical Center in order to determine clinical effectiveness and cost-effectiveness of ICDs as currently implanted. In addition CHF QUERI will work with Patient Care Services to **develop data systems to track ICDs** for purposes of identifying patients rapidly if and when a device recall occurs

Goal 3: Prevention and Identification of Unrecognized Heart Failure

We believe important targets for improvement of VA heart failure care include the identification of Stage B (asymptomatic) patients with ischemic heart disease, and unrecognized Stage C patients with symptoms of heart failure (dyspnea). Dr. Heidenreich has previously examined the cost-effectiveness of **screening high risk patients to identify those with reduced left-ventricular ejection fraction**. (19) CHF-QUERI will build upon this work by developing methods for system wide identification of VA patients who should be screened for reduced left-ventricular ejection fraction so that treatment can be initiated to prevent the symptoms of heart failure.

A related goal of CHF-QUERI is the prevention of heart failure (Stage B-D) through improved treatment of ischemic heart disease and hypertension (Stage A). Our QUERI center will have a close collaboration with IHD QUERI through common executive committee members and joint research projects. In addition, Mary Goldstein MD, MS of VA Palo Alto who is currently evaluating measures to improve treatment of VA patients with hypertension serves as a CHF QUERI co-investigator.